cellules above the external auditory meatus; and rarely a third branch is directed more anteriorly.

While the atrium of the tympanum varies but little in size, the attic and mastoid antrum vary greatly.

The *mastoid cellules*[1] consist of air-cavities of variable number, size, and extent, in the midst of the spongy substance of the mastoidea. They are commonly more or less proportioned in number and size with age. With the advance of years, they increase in both respects from the conversion of the ordinary marrow-filled, spongy substance into vacant spaces. Later they increase in capacity by expansion and coalescence, and proportionately decrease in number; and often in old age some of them even exceed in size the antrum. The cellules communicate with one another, and, through the sides and extremity, with the mastoid antrum.

Some small but important foramina and canals of the temporal bone, besides those mentioned, are worthy of notice.

In the ridge separating the jugular fossa from the entrance of the carotid canal, there is a fine canal which ascends to the tympanum. It communicates with the atrium at the inner part of the floor, beneath the promontory, and is thence continuous with a groove ascending and dividing into several branches upon the latter. The canal gives passage to the tympanic nerve, which is distributed upon the promontory.

Among the nutritious foramina of the carotid canal, chiefly on its outer wall, there are several larger ones, which communicate with the tympanum, and transmit one or two minute arteries and connecting branches of the tympanic nerve with the sympathetic nerve.

Likewise, in the jugular fossa, there are several foramina communicating with the tympanum for the passage of minute veins. Another foramen in the fossa extends in a fine canal outwardly, and opens into the fissure between the mastoid and auditory processes. The canal transmits the auricular branch of the vagus nerve, and, in its course, communicates with the facial canal.

On the inner extremity of the tegmen, a cleft or groove ends in a fine canal, which proceeds outwardly to the inner side of the receptacle of the tympanic tensor, and communicates with the tympanum. The canal transmits the small superficial petrosal nerve. Another small groove on the tegmen, close to that for the large superficial petrosal nerve, likewise ends in a fine canal, communicating with the facial canal, for the transmission of the least superficial petrosal nerve.

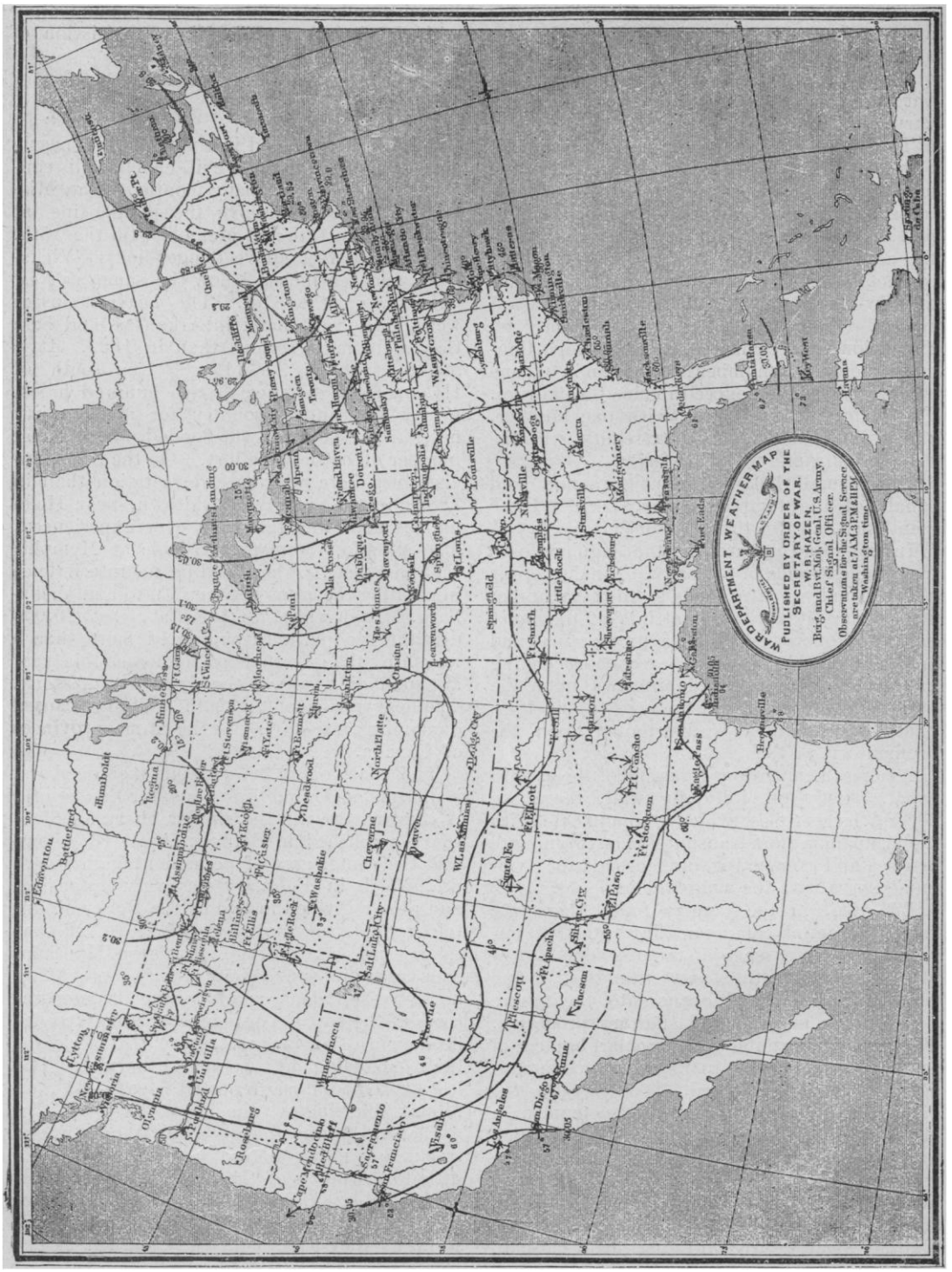
[1] Mastoid sinuses.

THE WEATHER IN MARCH, 1883.

THE floods reported last month have nearly subsided, though their evil effects will continue to be felt for many months. The Mississippi remained above the danger-line at Cairo till the 12th; at Memphis, till the 15th. It was two feet above danger-line at Vicksburg, and ten inches below the same at New Orleans, on the 31st. The heaviest losses were on the west bank in Arkansas, and here they were more serious than in 1882. It is stated, that on the 11th, to the south of Helena for a distance of two hundred miles, nearly the entire country for about thirty miles from the river was flooded, and a great number of cattle were lost. On the St. Francis River there was more devastation than in 1882; in the vicinity of Oldtown, near Helena, the flood was the worst ever experienced. The situation is more favorable at Memphis than last year. There will be no interference in planting the crops between Cairo and Vicksburg. And while, in 1882, at least 20,000 destitute people were supported more than a month by the government, the losses this year are confined mostly to the drowning of stock. The heavy rains of the 20th and 21st caused damaging freshets in the maritime provinces of Canada.

The chart on p. 386 exhibits mean isobars, isotherms, and wind-directions, for this month. A comparison with the similar chart for February, published in SCIENCE, April 13, shows that the winter area of permanent high pressure, which in February was very extensive, and nearly divided in two by the Rocky Mountain range, had moved to the east of that range, and was central in northern Montana. This area, in connection with the prevailing north-west winds, accounts for the low temperatures of the east. These present a marked deficiency in all sections east of the 97th meridian, the mean being 3.2° below the normal. The lowest temperature reported was — 34°, on Mount Washington, the 5th.

Eleven storms have been traced whose tracks lay either in the United States or a little to the north of the boundary. The following table exhibits the number and mean velocity of storms in each March since 1877, so far as they were sufficiently marked to enable a velocity to be determined.



MONTHLY MEAN ISOBARS, ISOTHERMS, AND WIND-DIRECTIONS, MARCH, 1883. REPRINTED IN REDUCED FORM BY PERMISSION OF THE CHIEF SIGNAL-OFFICER.

March storms.

YEAR.	NUMBER.	VELOCITY, MILES PER HOUR.
1877	11	34.5
1878	10	24.3
1879	13	35.2
1880	14	35.8
1881	9	26.8
1882	10	34.9
1883	11	38.0
Mean . . .	11.1	32.8

Storm-tracks have also been drawn for the Atlantic: these show a much less stormy month than usual. During the first half, the movement of storm-centres was checked by an area of high pressure over the ocean, and extending from Europe westward to the 45th meridian. In consequence of this high area, easterly and south-easterly winds prevailed, thus favoring vessels bound westward. The lowest pressure reported was 29.1 inches, to the south of Newfoundland, on the 27th.

Icebergs and field-ice were most numerous in the parts of the ocean indicated by the shaded portion of the accompanying map, which shows the southern and eastern limits of icebergs in the North Atlantic, based on the reports of shipmasters, *New York herald* weather-service, and data published by the *New York maritime register*.

The precipitation was markedly less than in previous years; all sections east of the 97th meridian exhibiting a deficiency, except the South Atlantic States, +.4; Florida peninsula, +1.4; and the western Gulf States, +.6. The mean deficiency for this whole region was .76 inch. The threatened drought in the Pacific States, as noted in February, was broken by rains in the latter part of this month. These were sufficient to assure the success of the wheat-crop. Five feet of snow in the streets of Montreal were reported on the 7th.

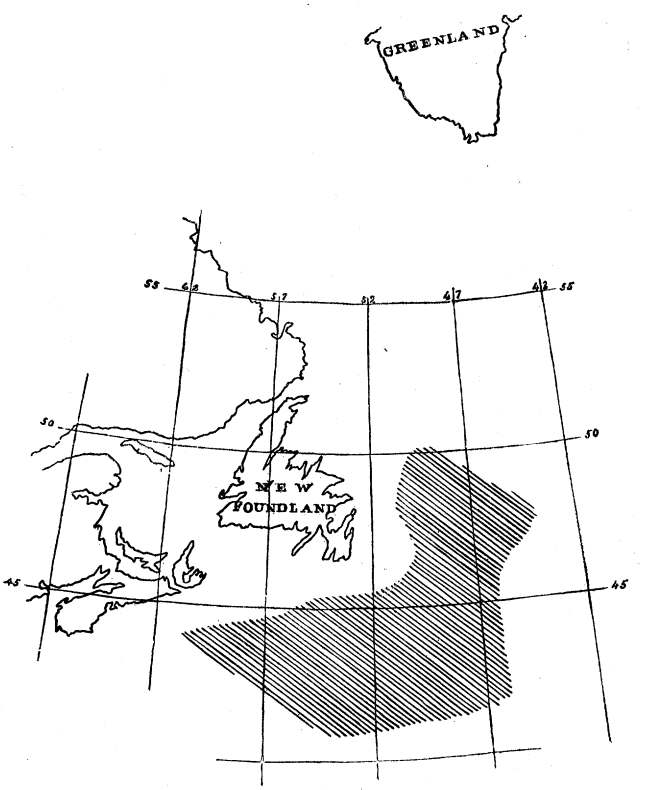
The table in the next column gives the total movement of the air in March at several stations.

These figures show, with only a single exception, less movement during the present month than for three years. The air moved at the rate of 1,123 miles per day, or 34,800

Total movement of air in miles.

STATION.	1881.	1882.	1883.
Eastport	11,499	9,794	11,069
Portland, Me.	7,985	7,626	7,579
Boston	9,826	9,425	9,259
New York	9,848	8,176	6,820
Mean.	9,789	8,755	8,682

miles during the month, across Mount Washington; and velocities above 100 miles per hour were reported on the 6th, 7th, 10th, 14th,



18th, and 25th. In the latter case the wind reached 150 miles in an hour.

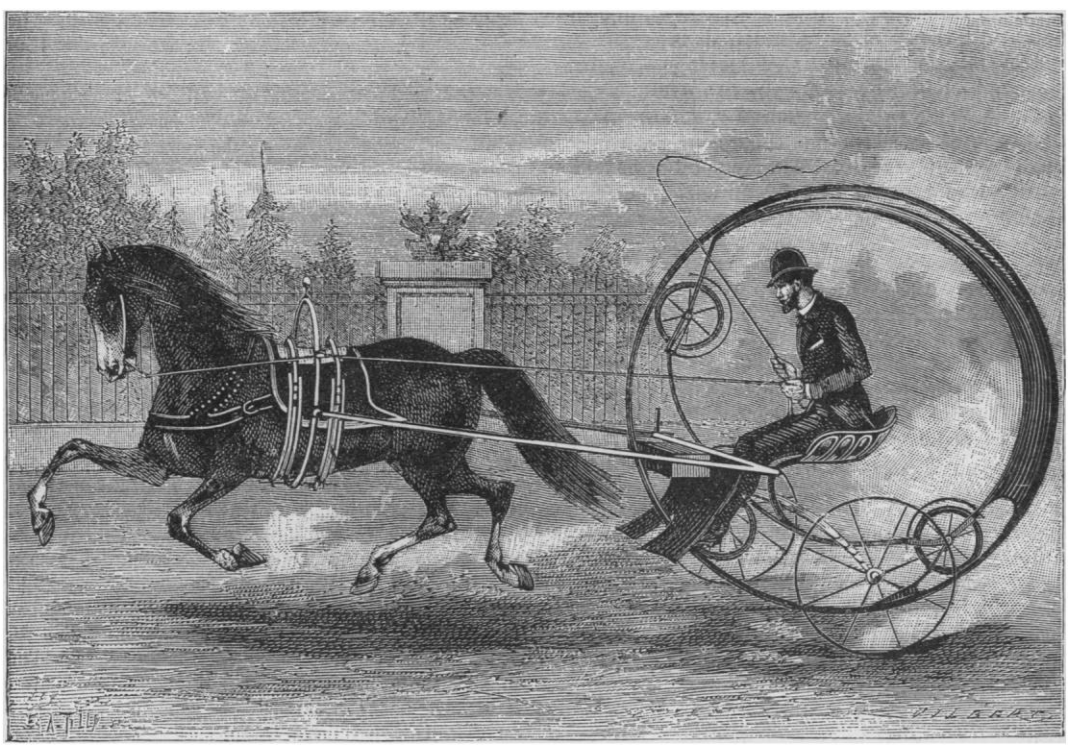
Cautionary signals to the number of 117 were displayed; and of these, 115, or 98 %, were justified.

Auroras were seen on nearly every day of the month, but none very brilliant. The most extensive occurred on the 1st, 2d, and 3d. Professor Todd of Amherst reported sunspots, least in number on the 3d; and most, about the 24th. Earthquake-shocks were reported from Waterloo, Canada, between 10 and 11 A.M., of the 11th, and at 6.57 P.M., of the

same date, at Fallstown, Ind. On the 30th a wide-spread shock was felt in California.

L'HIRONDELLE.[1]

THIS name we find given to a carriage which is the result of one of the recent attempts to gain for the ordinary road-vehicle the ease of traction which a rail gives. It might be better to say that the actual result is the use of a much larger wheel than any that can be used in the ordinary way, and so the advantage which a large wheel gives in passing over obstacles on a rough road. The form shown in the cut is said to have been used in Poland and Russia with considerable success, and carriages of this type to have made their appearance in Paris. The driver's seat is connected rigidly with the shafts and with the three small grooved wheels which are made to fit the inner surface of the large steel ring, or wheel proper, which rolls on the ground. A screen is furnished behind, to give protection from the mud and dust, which, carried up by the outer ring, would be dropped on the hapless occupant. To give the whole stability, there are two outriding wheels connected with the main part by springs, flexible enough to allow of the main weight being borne by the central wheel, and yet sufficiently stiff to prevent any overturning. The most of the parts are made of wrought iron or steel. It has been found that the carriage is not liable to accident, and, with ordinary care, may be kept in running-order.



L'HIRONDELLE.

[1] This article, and the cut accompanying it, are taken from *La Nature* of April 14.

THE GREAT COMET OF 1882.[1]

THE accompanying sketches are intended to give an idea of the appearance of the nucleus of the great 1882 comet, in the 26-inch Washington equatorial, on the evenings of Feb. 1, Feb. 23, and Feb. 27, 1883. A magnifying

[1] Communicated by permission of Vice-Admiral Rowan, superintendent U. S. naval observatory.